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MONTANA
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DEPARTMENT OF JUSTICE
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JANUARY 1983

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# PLEASE RETURN

THANKS

To all law enforcement personnel who carefully packaged and handled the evidence for the laboratory. Also, for their patience and understanding when a report is delayed.

To all the coroners and their deputies who diligently sent in their report forms on medical-legal cases. Also, to those who take complete toxicology samples and fill out the labels and request sheets.

To the 30 associate medical examiners who have courageously involved themselves in performing medical legal autopsies for their communities. Also, to those who have had to take the time from their busy hospital practice to appear in court and pre-trial conferences.

To the county attorneys and their deputies for arranging pre-trial conferences, allowing physicians and the forensic scientists to be on standby and often putting them on the stand as initial witnesses or out of turn.

It is through the cooperation of the above groups of individuals that insure justice through forensic science.

To Al Goke, Highway Safety Division, and Robert Solomon, Department of Health and Environmental Sciences, for funding grants for an enzyme drug analyzer, four breath alcohol analyzers, and a sexual assault evidence kit training program.

JANUARY 1983

# ON CALL SCHEDULE - MONTANA STATE MEDICAL EXAMINER

275 W. Front Street
Missoula, Montana 59802

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | | 1 RON RIVERS |
| 2 RON RIVERS | 3 | 4 | 5 | 6 | 7 | 8 RON RIVERS |
| 9 RON RIVERS | 10 | 11 | 12 | 13 | 14 | 15 JOHN PFAFF |
| 16 JOHN PFAFF | 17 | 18 | 19 | 20 | 21 | 22 KEN MUELLER |
| 23 KEN MUELLER / KEN MUELLER 30 | 24 / 31 | 25 | 26 | 27 | 28 | 29 KEN MUELLER |

Telephone Numbers: State Office - 728-4970
WATS Line - 243-5796

Home Phone: Dr. Ron Rivers- 728-2033 (Home)
(week nights call unless otherwise indicated)

Dr. John Pfaff - Great Falls
Hospital - 727-3333
Home - 727-3905

Dr. Ken Mueller- Billings
Hospital - 657-7000
Home - 248-3024

JANUARY 1983
SUDDEN UNEXPECTED DEATH
IN ADULTS
R. L. RIVERS, M.D.

"Doc, we've got a 26 year-old gal found dead in her livingroom. A neighbor, Kathy, found her just fifteen minutes after having talked to her on the phone. The neighbor attempted cardiopulmonary resuscitation but there was no response. Strange case. Kathy had just been invited over for a cup of coffee by the deceased. She said she sounded fine and they often had coffee together during the week."

"Not a mark on the body I suppose?", queried the medical examiner. "Just a tiny cut over the left eyebrow", answered the coroner, "where she hit the edge of the sofa. I also checked the coffee pot - no short; the heaters - all well ventilated; and the kitchen - she wasn't eating so she didn't choke."

"Boy, Jerry, you think of everything don't you!", exclaimed the doctor. "I've been in the business a long time, Doc. Her arms were clean for needle marks and hesitation scars. There were no drugs around and her family physician says she was as healthy as a horse."

"Well, that just about eliminates any violent type of death, I'll see what I can find at post-mortem."

QUESTIONS:

1) What is the most frequent cause of sudden <u>natural</u> unexpected deaths in adults?

2) What other conditions may cause sudden <u>natural</u> unexpected deaths in adults?

3) What other violent types of death should be considered in this case?

4) How should the pathologist approach the post-mortem?

JANUARY 1983
SUDDEN UNEXPECTED DEATH
IN ADULTS
R. L. RIVERS, M.D.

ANSWERS:

1. There is no universally accepted definition of sudden unexpected death. Most investigators define it as an unexplained death occuring instantaneously to within one hour of the onset of symptoms. Some say death within seconds, several minutes or 24 hours. It may be observed or unattended. In the overwhelming majority of cases, sudden natural deaths in adults are the result of advanced coronary artery disease.

2. Other heart conditions involving defects in the walls, the valves, or the electrical conduction system account for the greatest part of the deaths. Forty young males in the U.S. from the Hmong tribes of Northern Laos who have died during their sleep may have had a cardiac rhythm disturbance. Many heart conditions are inherited and relatives should be referred to a cardiologist for examination and genetic counseling. This may prevent another death in the family from the same condition.

   Rarely, a respiratory cause will be found such as pulmonary embolism, pneumothorax or acute epiglottitis. Bleeding into the brain from a stroke or ruptured aneurysm seldom kills instantaneously but usually results in periods of unconsciousness before death.

   Rupture of a diseased aorta or spleen can cause a rapid death. Alcoholics with fatty livers sometimes die suddenly.

   Unexpected diseases such as diabetes, epilepsy, sickle cell anemia or delirium tremens can kill suddenly.

   Much has been written on unexplained deaths occurring from fright, stress, blows to the chest and voodoo. While most are believed to be caused by a cardiac rhythm disturbance it is best to call these undetermined if not documented with an electrocardiogram. Around five percent of deaths are undetermined even after autopsy. To render an opinion is overcalling and statistically misleading.

3. Acute alcoholism or some other type of poison should be considered. And if she was an alcoholic could she have passed out and suffocated from positional asphyxia. A delayed violent death may have occurred. She may have died during a convulsion from an old head injury.

   Outside of this case, other violent deaths may be accidental hyperthermia or heat stroke.

ANSWERS CONTINUED:

4. When there is no evidence of external injury the pathologist should take care to:

   a) Test for pheumothorox

   b) Test for air embolism

   c) Culture the heart blood

   d) Test vitreous

      glucose - diabetic

      potassium - delerium tremens

      sodium - dehydration

   e) Bone marrow and lymph node imprints

   f) Polarize tissues - intravenous narcotism, ethylene glycol poisoning

   g) Toxicology - alcohol, screen, plus CO, cyanide Placidyl

      Heart

      Weighs and dissect coronaries carefully

      Measure valves and ventricles

      Section nodal areas